AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

1. (currently amended)

An automated computer-controlled monitoring system for
2 determining the concentration of an analyte of interest in
ground water, industrial and surface water, comprising:

4 ~~-a-sampling-device-within-a-well-casing-and-comprising-
valve-means-and-water-level-sensor-means-to-provide-a-ground--
6 water-sample-of-predetermined-volume,--~~

~~a-treatment-assembly-to-receive-the-sample-from-the-
8 sampling-device,-said-treatment-assembly-comprising-means-to--
provide-a-calibration-standard-for-the-analytical-assembly,--
10 and-one-of-{a}-a-treatment-cartridge-to-filter-the-sample-and---
a-calibration-sensor,--{b}--a-source-of-analyte-free-water--
12 connected-with-the-treatment-assembly,-~~

diversion means dividing a water sample into first and
14 second flow paths, said first flow path directing the water
sample to a sample chamber for analysis, and the second flow
16 path passing the water sample through one of (a) a media, (b) a
chamber, to eliminate the analyte of interest before
18 introduction of water into the sample chamber,

(continued)

3.

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1. (currently amended - continued)

a calibration assembly to add a standard of predetermined

20 concentration of -the- analyte -and-volume-to-the-water-from-the-

treatment-assembly,- to the water after it passes through one

22 of (a) the media, (b) the chamber, to eliminate the analyte of

interest, and

24 an analytical assembly comprising-instrumentation-for-

analysis-of-analytes-of-interest, to determine the concentration

26 of the analyte in the sample water for either of the first or

second flow paths.

28 -sensor-means-in-the-analytical-assembly-for-sensing-

concentration-of-the-analyte-in-the-sample,-and-

30 -means-to-receive-analysis-and-assay-data-from-the-

analytical-module-to-transmit-the-data-to-a-cognizant-agency.---

4.

2. (original)

An automated monitoring system according to Claim 1,

2   and further comprising a calibration loop for establishing

a predetermined amount of standard solution.

3. (original)

An automated monitoring system according to Claim 1,

2   and further comprising:

means to provide a matrix modifier, and

4   a valved loop defining a volume of matrix modifier

introduced into the sample chamber.

4. Canceled.

5. (currently amended)

An automated monitoring system according to Claim 1,

2 wherein:

the analytical and calibration assemblies are disposed

4 in a casing separate from [[the]] a monitoring well casing to

provide improved environmental control, ease of maintenance

6 and security.

6. (currently amended)

An automated monitoring system according to Claim 1,

2 and further comprising means for stirring [[the]] _a_ ground

water sample to enhance volatilization of concentration of

4 the analyte in the sample.

7. (original)

An automatic monitoring system according to Claim 1,

2 wherein trichloroethylene is the analyte of interest, and

monitoring and analysis are performed utilizing an optrode

4 assembly and procedure.

8. (currently amended)

An automated computer-controlled method for determining

2 concentration of an analyte of interest in ground water <u>and</u>

<u>surface water</u>, comprising the steps of:

4 collecting and transporting a ~~ground-~~ water sample ~~from-~~
~~a-well-casing~~ to a preparatory treatment assembly,

6 ~~performing-one-of-(a)-passing-said-water-sample-through-~~
~~filtering-media-in-a-treatment-assembly-to-remove-the-analyte~~
8 ~~of-interest,-(b)-supplying-water-having-no-analysis-therein-~~
~~from-an-external-source,--~~

10 ~~passing-water-from-an-external-source-to-a-calibration-~~
~~assembly-for-addition-of-a-calibration-standard,-~~

12 <u>passing the water sample to diversion means to divide</u>
<u>the water sample into first and second flow paths, said</u>
14 <u>first flow path directing the water sample to a sample chamber</u>
<u>for analysis, and the second flow path passing the water</u>
16 <u>sample through one of (a) a media, (b) a chamber, to eliminate</u>
<u>the analyte of interest before introduction of water into the</u>
18 <u>sample chamber,</u>

(continued)

7.

8. (currently amended - continued)

passing the water sample ~~with the~~ to a calibration

20 ~~standard therein to the analytical module for analysis,~~

assembly to add a standard of predetermined concentration of

22 analyte to the water sample after it passes through one of

(a) the media, (b) the chamber, to eliminate the analyte

24 of interest, and

passing the water sample to an analytical assembly

26 to determine the concentration of the analyte in the sample

water for either of the first or second flow paths.

28 ~~analyzing one of (a) the sample, (b) the standard, by~~

~~instrumentation appropriate for the analyte of interest,~~

30 ~~and recording analysis results,~~

~~transporting fluids from said analytical assembly to~~

32 ~~disposal means, and~~

~~relaying analysis data from the analytical assembly to~~

34 ~~a communication system for transmission to a cognizant agency.~~

9. (original)

A method according to Claim 8, and further comprising:

2   introducing calibration standards into a standard container and transporting the standard by a sample vessel.

10. (currently amended)

A method according to Claim 8, and further comprising

2   the step of:

calibrating ~said~instrumentation for analysis by

4   providing a predetermined amount of standard solution via a calibration loop and passing it into the sample chamber.

11. (original)

A method according to Claim 10, and further comprising:

2   passing the sample from a well casing to a calibration system to prepare blanks or standards for addition of the

4   standard directly for use in the analytical assembly.

12. (currently amended)

A method according to Claim 8, and further comprising

2 the steps of:

introducing the sample [[in]] into a sample vessel

4 until a lower sensor is satisfied, and

adding water to the sample vessel from a water

6 treatment cartridge until an upper water level sensor in

the sample vessel is satisfied to provide a predetermined

8 dilution.

13. (currently amended)

A method according to Claim 8, wherein the analyte of

2 interest is trichloroethylene and said instrumentation for

analysis comprises utilizes an optroduce assembly.

14.   (new)

A method according to Claim 8, and further comprising

2   relaying analysis data from the analytical assembly to a

communication system for transmission to a cognizant agency.

15.   (new)

An automated monitoring system according to Claim 1,

2   and further comprising a sampling device within a well

casing and comprising valve means and water level sensor

4   means to provide a ground water sample of predetermined

volume.

16. (new)

An automated monitoring system according to Claim 15,

2   and further including a treatment assembly to receive the

sample from the sampling device, said treatment assembly

4   comprising means to provide a calibration standard for the

analytical assembly, and one of (a) a treatment cartridge

6   to filter the sample and a calibration sensor, (b) a source

of analyte-free water connected with the treatment assembly.

17. (new)

An automated monitoring system according to Claim 1,

2   and further comprising means to receive analysis and assay

data from the analytical assembly to transmit the data to a

4   cognizant agency.